Washington Department of Wildlife

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TOUTLE RIVER FISH RECOVERY

Before the eruption of Mt. St. Helens in 1980, the Toutle River supported excellent runs of winter and summer steelhead, searun cutthroat, and coho and spring and fall chinook salmon. It was ideal for anglers.

May 18, 1980

But on May 18, 1980, the mountain erupted, sending hot mud down both the north and south forks of the Toutle, boiling alive any fish or wildlife unfortunate enough to be in its path. Over 150,000 acres of timber were either blasted over or seared by the heat. This entire "blast area" was reduced to a stark gray wasteland, devoid of vegetation and other signs of life. Ash covered most of the Toutle drainage, but was especially heavy in the Green River, a tributary of the North Fork of the Toutle.

Many fish were killed by the mudflows and blast, but even the survivors struggled against tremendous odds to complete their normal life cycle. One immediate problem was a severe disruption of the river food chain. Algae, which covers the bottom of most streams, is the basic link of the chain. Muddy water in the Toutle stifled algae growth by preventing sunlight from penetrating to the bottom. This in turn reverberated up the food chain as the availability of food declined, first for aquatic insects, then for insect-eating fish.

With the loss of streamside vegetation, water temperature soared during the summer, reaching levels near the tolerance limits of fish. Water quality was atrocious. To breathe, fish had to pump mud-laden water through their gills—sandblasting their delicate gill filaments.

Reproduction was another problem. Salmon and steelhead bury their eggs in gravel for protection from predators. But accumulations of silt in the Toutle prevented oxygen from reaching the eggs, causing suffocation. Clean gravel was a rare commodity in the Toutle.

Overall, the picture was bleak. The only brights spots were several small tributary streams that miraculously escaped the influence of mudlfows, blast and ashfall. These streams still possessed the ingredients necessary for fish survival.

Life Returns

As time passed, life was returning beneath the gray ash and debris. Small cracks appeared in the ash as plants pushed through to daylight. Wherever live mature alders provided seed, small alders sprang up like a lush green carpet. Because of their ability to fix nitrogen from the atmosphere, alders played a critical role restoring fertility to mudflow soils.

Another miracle was underway beneath the turbid waters of the Toutle. With the shortage of suitable spawning gravel, fish spawned in mudflow sediments. Several small tributaries near the mouth of the Toutle, normally passed by for more desirable streams, were choked with adult fish apparently seeking the first available clean water after entering the silt-laden Toutle. Remarkably, many fry hatched out in these streams.

Toutle stocks also showed their resilience at the mouth of the Cowlitz River, where Toutle water finally finds the Columbia River. Normally, only a few fish born and reared in a particular river system will stray to other rivers to spawn. These fish act as an evolutionary safety valve for disasters like flood or landslides that jeopardize their native stream. As fish returned to the Cowlitz mouth and found the silty water, many simply continued to other Columbia River streams to spawn. Nearby streams were swamped with adult fish from the Cowlitz and Toutle systems.

Most of these strays will probably steer clear of the volcanic sediments until conditions improve. As the water clears up, fish will begin to wander from other drainages back into the Cowlitz and Toutle watersheds. Offspring of these fish will be the Toutle stocks of the future. Strays into the Toutle will also provide genetic diversity to protect against disease outbreak or other natural calamity.

The complex life cycles of native fish stocks provided other mechanisms

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to ensure survival in the face of natural catastrophe. Steelhead, for example, normally feed in the ocean for one to three years before returning to fresh water. Most return after two years. The variability in return-timing means that if a disaster occurs in a watershed that wipes out a whole generation of fish, fish at sea during the disaster can return the next year to begin the rebuilding process.

The spectacle of Mt. St. Helens' eruption and awesome devastation set the stage for many equally spectacular natural events that have followed. The South Fork of the Toutle is a good example. In 1980, the river valley was choked with volcanic mud. Only four years later, most of the mud had been flushed away by winter floods. Wild winter steelhead have rebounded from a run of several hundred fish immediately after the eruption to as many as 2, 764 in 1988. Spawning density is even higher than nearby drainages unaffected by the eruption.

Despite the devastation of Mt. St. Helens eruption in 1980, wild stocks of fish have rebounded and, in some cases, are thriving already. With thousands of species of animals and plants currently threatened or endangered in the world ecosystem, the Toutle recovery gives us a ray of hope that given their own devices of survival, living things can rebound from severe adversity.